Mathematics
Number Revision

The Dean Trust Lord Derby Academy

Place Value

1) Write the number 3011 in words

2) Write the number 602 308 in words

3) What is the value of 4 in 4332?

4) What is the value of 9 in 291 486?

5) Calculate 570 ÷ 100

6) Calculate 3.73 x 10

BIDMAS

1) Calculate: 3 + 4 x 6 - 5

2) Paula says that 2 x 3 – 2 x 5 = -4
Steve says the answer is 10.
Who is right, and why?

3) $10 - 4^2 =$

4) $(15 - 4 \times 3)^2 =$

Types of Numbers

1) List the first 5 multiples of 7.

2) List the first 5 multiples of 13

3) List all the factors of 24.

4) List all the factors of 50.

5) What is the 7^{th} prime number?

6) Explain why 24 is not a square number.

Directed Numbers

1) Put these numbers in ascending order: 2, 4, -4, -6, -8

2) Put these numbers in ascending order: -7, -2, 11, -8, 3

3) 5 – 8 =

4) -6 + - 9 =

5) -2 x -4 =

6) -6 x -3 =

7) 5 x -8 =

8) 36 ÷ -8 =

9) -2 – 3 =

10) 18 – 36 =

HCF and LCM

1) Calculate the highest common factor of 24 and 48.

2) Calculate the lowest common multiple of 3 and 12.

3) Calculate the lowest common multiple of 9 and 12.

4) Calculate the highest common factor of 72 and 60.

Indices

1) $y^4 \times y^3$

2) $a^9 \times a^3 \times a^3$

3) $b^8 \div b^6$

4) $h^8 \div h^8$

5) $\frac{c^5 \times c^3}{c^4}$

6) x^0

7) $\frac{k^3}{k \times k^3}$

Rounding and estimating

1) Round 44 for the nearest 10.

2) Round 5932 to the nearest hundred.

3) Round 5.2 to the nearest whole number.

4) Round 42.685 to one decimal place.

5) Round 72 359 to one significant figure.

6) Round 0.08045 to two significant figures.

7) Estimate $\frac{82 \times 462}{0.49}$

Mathematics
Algebra Revision

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Simplifying

1) y + y + y

2) 7a + 5a +3a

3) 6s + 4t + 2s + 3t

4) 7f + 6g – 4f + 4g

5) 5z – 2w – 2z – 2w

Solving Equations 1

1) x + 5 = 11

2) w – 4 = 23

3) 5d = 80

4) k/5=7

5) 7x + 5 = 12

Expanding Brackets

1) 4(a + 4)

2) 6(c + 6b)

3) 5(x – 3y)

4) a(a + 7)

5) x(3y – 5x)

nth Term

Find the nth term of the following sequences

1) 6, 9, 12, 15, 18, …

2) 10, 15, 20, 25, 30, …

3) 2, 8, 14, 20, 26, …

4) 1, 2, 3, 4, 5, …

5) Find the first three terms of the sequence with nth term 2n - 2

6) Find the first three terms of the sequence with nth term 2n + 7

Solving Equations 2

1) 4(x - 2) = 24

2) 5(2y + 4) = 80

3) 3x + 4 = 5x – 8

4) 8x – 3 = 6x + 3

5) 4(x + 2) = 3(x + 7)

Factorise

1) 4x + 44

2) 6y + 36

3) 6a – 18

4) $x^2 + 5x$

Substitution 1

1) Find 3x + 5y when x = 2 and y = 2

2) Find abc when a = 1, b = 3 and c = 5

3) Find 7s – 2t when s = 3 and t = –3

4) Find 4(2n – 3) when n = 4

Substitution 2

1) Find 2x – 3y when x = 5 and y = -3

2) Find $a^2 + 5b$ when a = 4 and b = -2

3) Find $3x^2$ when x = 3

4) Find xy^2 when x = 3 and y = -3

5) Find $2x^2 + 3y^2$ when x = 2 and y = 3

Mathematics

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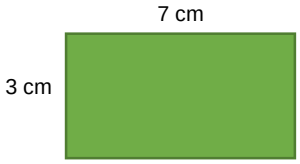
Shape, Space and Measure Revision

Area and Perimeter

Calculate the area and perimeter of the following shapes:

1)



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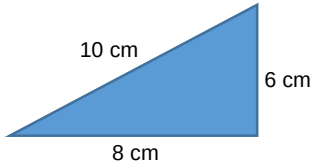

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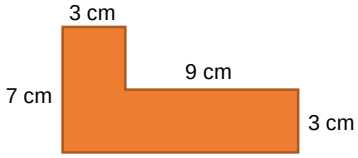
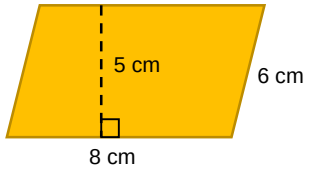
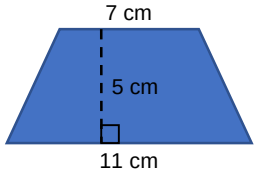


Calculate the area of the following shapes:

4)



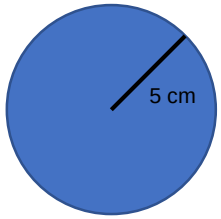
5)



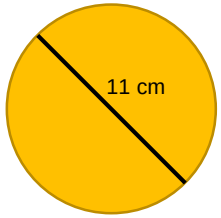
Circles

Calculate the area and circumference of the following shapes:

1)



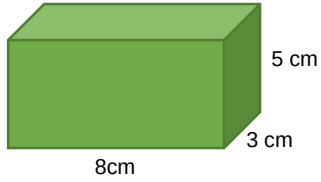
2)



Volume and Surface Area

Calculate the volume and surface area of the following:

1)



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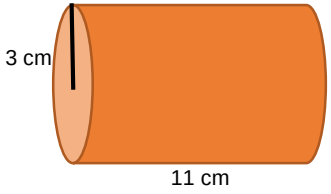
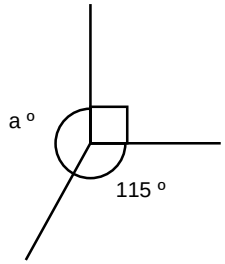


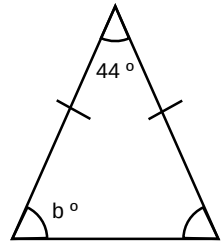
Angles

Calculate the missing angles in each of these diagrams and give reasons for your answers.

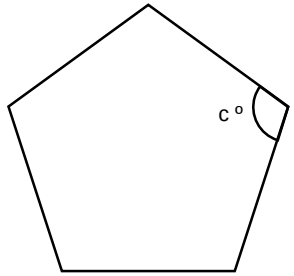
1)



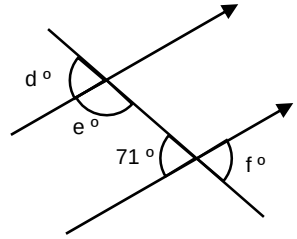
2)



3) Diagram shows a regular pentagon



4)



Measures

1) Convert 450 ml to litres.

2) Convert 7300 cm² to m².

3) Mia drove a distance of 343 km. She took 5 hours 30 minutes. Work out her average speed. Give your answer in km/h.

4) Daniel leaves his house at 09 00. He drives 87 miles to work. He drives at an average speed of 36 miles per hour. At what time does Daniel arrive at work?

5) The mass of 6 m³ of copper is 44 800 kg. Work out the density of copper.

Mathematics

Ratio and Proportion Revision

Equivalent Fractions, Decimals and Percentages

1) Complete the table below.

Fraction	Decimal	Percentage
½		
	0.7	
		35%
¼		

2) Would you rather have ¾, 60% or 0.62 of a pizza? Why?

Simplify Ratio

1) Simplify 24 : 8
2) Simplify 12 : 48
3) Simplify 20 : 12
4) Simplify 50p : £7.50
5) Simplify 6 : 8 : 12
6) There are 32 pupils in a class. 18 of them are girls. What is the ratio of boys to girls in its simplest form?

Calculating with Decimals

1) Which is the biggest?
   4.013
   4.0014
   4.0013
2) Calculate 3.5 + 0.37?
3) Three friends compare their heights. Who is the tallest?
   Anna is 1.57m
   Chris is 1.63m
   Drew is 1.43m
4) Calculate the answer to 1.8 divided by 3
5) £5.10 is shared equally between three brothers. How much does each brother receive?
6) Aisha buys a magazine for £1.35 and chocolates for £3.99. She pays with a £10 note. How much change does she receive?

Simplifying Fractions

1) Simplify $\frac{7}{14}$
2) Simplify $\frac{14}{20}$
3) Simplify $\frac{22}{24}$
4) Write as an improper fraction $3\frac{3}{4}$
5) Write as a mixed number $\frac{27}{4}$

Calculating with Fractions

Give your answers in their simplest form.

1) $\frac{1}{3}+\frac{1}{4}$

2) $\frac{4}{12} \times \frac{6}{16}$

3) $\frac{6}{7} \div \frac{7}{9}$

4) $3\frac{1}{3} - 2\frac{2}{3}$

Percentages of Amounts

1) Calculate 60% of 600 ml.
2) Calculate 63% of £120.
3) Bobby went to the shop and there was a 30% sale. He was going to buy a top for £24. How much does he save?
4) Sarah went to the shop and there was a 25% sale. She was going to buy a CD for £8. How much does she save?

Divide into a Ratio

1) Paul is making grey paint. He mixes black and white paint in the ratio 1: 3. He makes 32 litres of grey paint. How much white paint does he use?
2) The ratio of adults to children in the sports club is 4 : 3. There are 100 adults in the club. How many children are there?
3) Tim, Shula and Carol share the running costs of the car in the ratio 1 : 2 : 3. Last year it cost £1494 to run the car. How much did Carol pay?

Increasing and Decreasing by Percentages

1) Claire improves her further distance for running by 29%. She used to be able to run 4km. How far can she run now?
2) Michael gets 32% better at kick ups. He used to be able to do 42. How many can he do now?
3) Ben loses 46% of his Instagram followers. He used to have 380. How many does he have now?
4) Red bull has 84% more sugar than Coke Life. Coke Life has 1.2g of sugar. How much does Red Bull have?

Mathematics

The Dean Trust Lord Derby Academy

Probability Revision

Probability

1) I roll a normal, 6 sided dice. What is the probability that I get:
a) a 5?
b) an odd number?
c) a number less than 3?

2) The spinner shown in spun. What is the probability that the spinner lands on:
a) yellow?
b) green or yellow?
c) not green?

3) I put the letters from the word EXERCISE on cards, place them face down and then mix them up. I pick one card at random. What is the probability that the card is:
a) an i?
b) a vowel?
c) not an E?

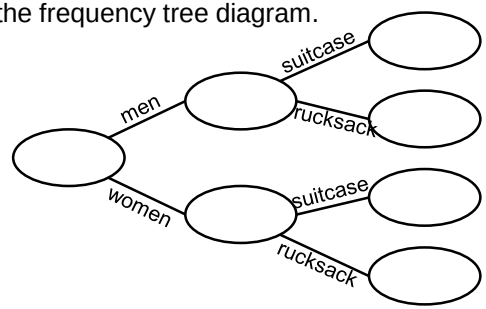
4) The probability that I win a 100m race is 7/10. What is the probability that I don't win the race?

5) The probability that is rains tomorrow is 0.24. What is the probability that it doesn't rain tomorrow?

Frequency Trees

300 adults go on an international flight. Each travel with a suitcase or a rucksack. 120 are men. 70 men and 115 women have suitcases.

1) Fill in the frequency tree diagram.



2) What is the probability that a passenger chosen at random is a man with a rucksack?

3) What is the probability that a passenger chosen at random is a woman with a suitcase?

Systematic Listing

1) Three friends Andrew, Bill and Chris are sitting in the same row at a concert. Show the different seating arrangements that are possible.

2) A restaurant menu allows a choice of one each of starter, main course and sweet. The choices are:

Starter	Main Course	Sweet
Melon	Pasta	Gateaux
Soup	Fish	Ice-cream
	Chicken	

Sample Space Diagrams

Two fair dice are thrown together and the scores are added together.

1) Complete the sample space diagram showing all the possible outcomes

	1	2	3	4	5	6
1						
2						
3						
4						
5						
6						

2) How many outcomes are there altogether?
3) What is the most likely score?
4) What are the least likely scores?
5) What is probability of scoring 11 or more?

6) What is the probability of scoring less than 4?

Relative Frequency

1) The probability that a biased dice will land on a five is 0.4. Megan is going to roll the dice 400 times. Work out an estimate for the number of times the dice will land on a five.

2) Jack sows 300 wildflower seeds. The probability of a seed flowering is 0.8. Work out an estimate for the number of these seeds that will flower.

Mathematics

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Data Handling Revision Mat

Averages

1) Here are fifteen numbers.
11 13 14 16 17 19 20 21 21 22 22 26 26 26 26

a) Find the mode.

b) Find the median.

c) Work out the range.

2) A rugby team played 9 games.
Here is the number of points they scored in each game.
3 5 7 8 9 11 12 12 16

a) Find the median.

The rugby team played another game.
They scored 11 points.

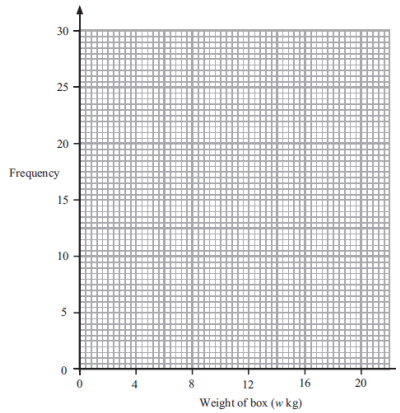
b) Find the median number of points scored in these 10 games.

3) The mean of eight numbers is 40
The mean of two of the numbers is 28
What is the mean of the other six numbers?

Frequency Polygons

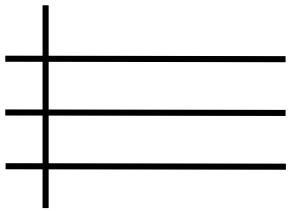
The table shows some information about the weights, in kg, of 100 boxes.
Draw a frequency polygon to show this information.

Weight of box (w kg)	Frequency
0 < w ≤ 4	10
4 < w ≤ 8	17
8 < w ≤ 12	28
12 < w ≤ 16	25
16 < w ≤ 20	20



Stem and Leaf

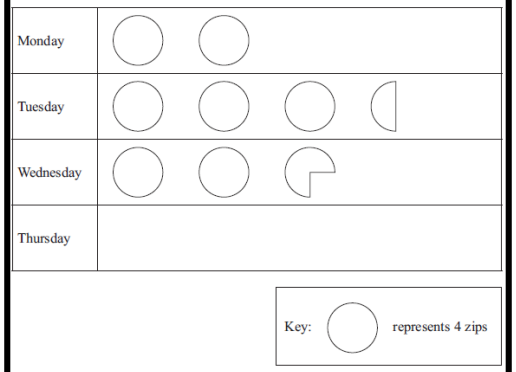
Here are the ages, in years, of 15 students.
18 17 21 24 36
32 20 16 28 21
41 17 24 36 21
Show this information in an ordered stem and leaf diagram.



Key:

Pictograms

The pictogram shows the numbers of zips sold in a shop on Monday, on Tuesday and on Wednesday.

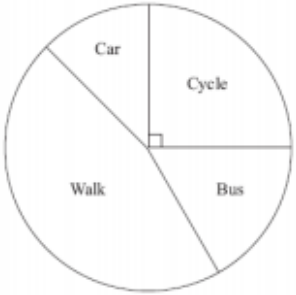


Write down the number of zips sold on Wednesday.

8 zips were sold on Thursday.
Complete the pictogram.

Pie Charts

Harry asked each student in his class how they travelled to school that day.
He used the results to draw this pie chart.



How did most of the students travel to school?

Harry asked a total of 20 students.
Work out the number of students who cycled to school.

Averages from Frequency Tables

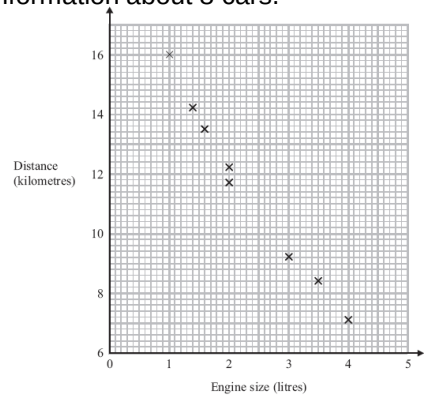
Bob asked each of 40 friends how many minutes they took to get to work.
The table shows some information about his results.

Time taken (m minutes)	Frequency
0 < w ≤ 10	4
10 < w ≤ 20	9
20 < w ≤ 30	12
30 < w ≤ 40	8
40 < w ≤ 50	7

Work out an estimate for the mean time taken.

Scatter Graphs

The scatter graph shows some information about 8 cars.



What type of correlation does the scatter graph show?

A car has an engine size of 2.5 litres.
Estimate the distance travelled on one litre.